

Natural and Economic Resources Appropriations Subcommittee

20 February 2013

W. Steven Burke
President and CEO
Biofuels Center of North Carolina

Three definitions:

Biofuels

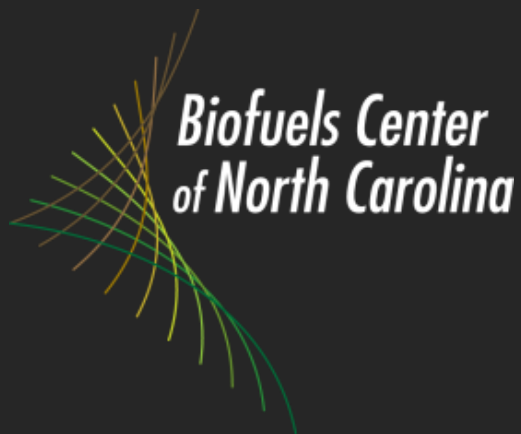
Liquid transportation fuels. Ethanol or biodiesel.
Produced from crop, wood, or waste materials.

Feedstock

The crop, wood, or waste materials.

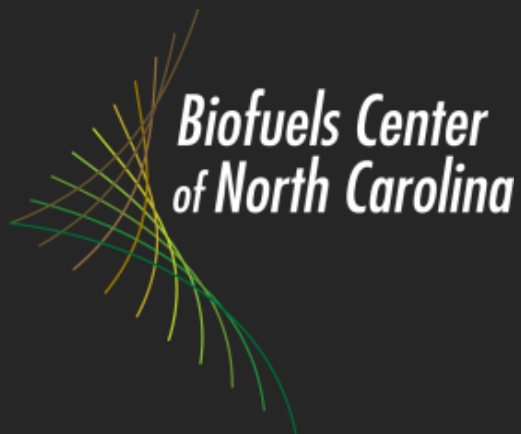
Biomass

Large volume of crop or wood materials.



Located in Oxford, Granville County, on the Oxford Research Station of the NCDA&CS, to which \$1.00 annual rent is paid.

Works in partnership with the NCDA&CS to develop an industry Biofuels Campus on the site.



Established by the Legislature as a private non-profit corporation in 2007. This structure facilitates public-private partnerships, flexible responses to industry and market development, and fewer state government strictures.

GOVERNANCE

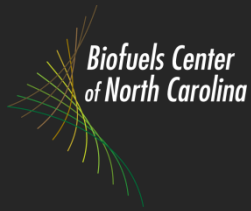
An 8-member executive committee and 32-member board, twelve of which are political appointees and agency heads.

Budgets and expenditures are approved by the board.

Financial accountability is ensured by annual audits and a contract with the NC Department of Commerce, through which the Center's appropriation passes.

MISSION

Create over time large capacity statewide for growth and production of biofuels – cellulosic ethanol and biodiesel.



MISSION

The Center is the nation's only targeted biofuels agency.

MISSION CONTEXT

For an effective energy future, North Carolina must comprehensively address:

- Electricity
 - Off-shore drilling
 - Fracking
 - Efficiency
 - Biofuels
-

MISSION CONTEXT

For liquid transportation fuels, adding biofuels to petroleum reduces single-source dependency, increasing energy supply and independence.

MISSION CONTEXT

American biofuels production will move from the Midwest to the Southeast. The USDA estimates that the Southeast can yield 49.8% of the required biomass. North Carolina is well positioned.

MISSION CONTEXT

Since 2007, North Carolina has strategically committed to gain biofuels from within the state.

Commitment has been wide and non-partisan.

MISSION CONTEXT

In 2007, the legislatively mandated *Strategic Plan* led to legislative establishment of the Biofuels Center to capture opportunity.

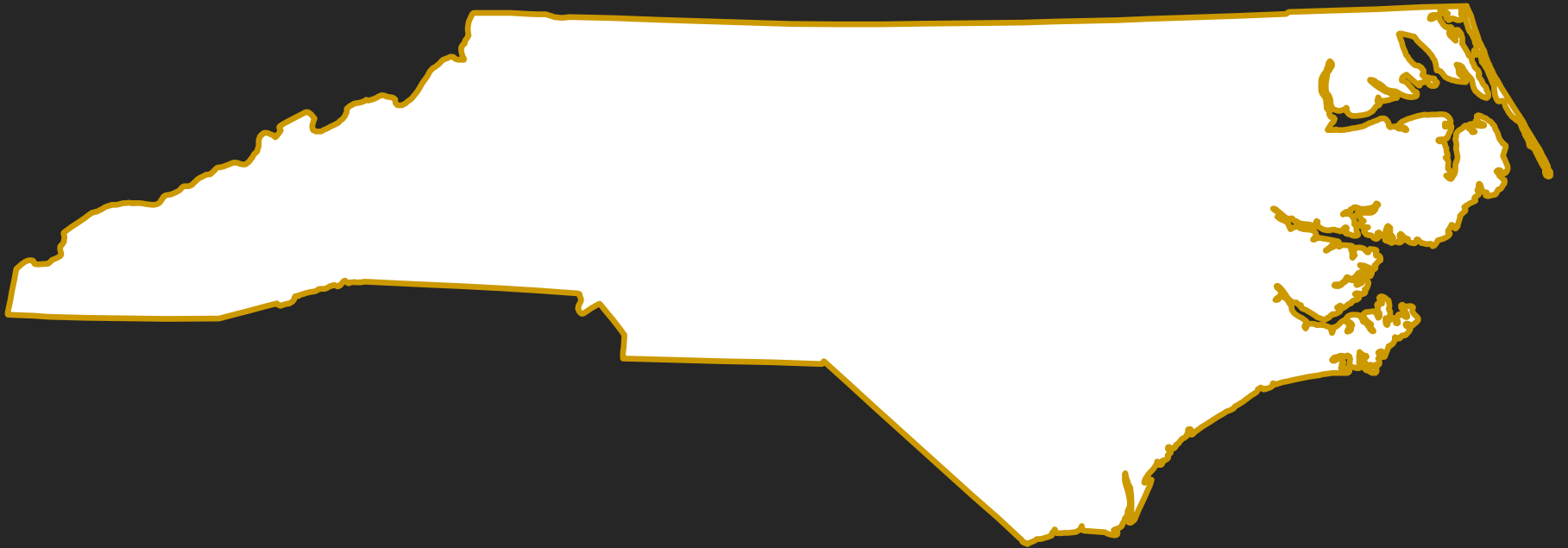
Statewide biofuels opportunity:

-  Rural vitalization
 -  Ag and industry jobs in rural NC
 -  Economic gain and tax revenues
 -  Strengthen agriculture
 -  Smart energy policy
 -  A enormous new sector matched to land and resources
-

In 2007, North Carolina had no
biofuels sector and few resources.



Creating a new biofuels sector
statewide yields a 3-part challenge.



First, identify feedstock biomass and large acreage that is available, marginal, or perhaps forested.



Second, identify and attract large investment production companies to buy the feedstocks.



Third, gain large biomass and
expensive facilities at the same
time.



A grower or landowner will not commit to large acreage or new crops without an assured market.

A production company will not make a \$150M+ investment without an assured supply.

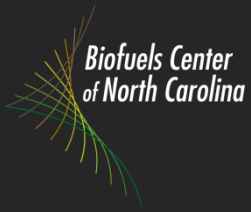
Nationwide, this chicken and egg challenge for new cellulosic biofuels has been slow to resolve.

North Carolina can show a lead model – advantageous equally to growers and industry.

1 • MISSION AND PROGRAMS

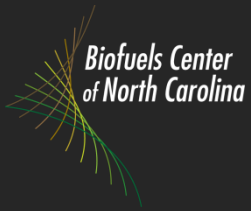
Create over time large capacity for growth and production of biofuels – cellulosic ethanol and biodiesel.





1 • MISSION AND PROGRAMS

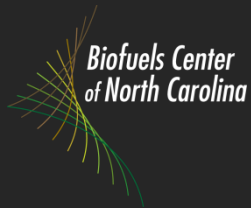
Create over time large capacity for growth and production of biofuels –
cellulosic ethanol and biodiesel.



1 • MISSION AND PROGRAMS

Cellulosic – not corn but other crop, wood, or waste biomass.

NC's biofuels endeavor is not based on corn. Other biomass must be identified.



1 • MISSION AND PROGRAMS

To execute its mission for large capacity, the Center must work with public and private partners:

1 • MISSION AND PROGRAMS

To execute its mission for large capacity, the Center must work with public and private partners:

1 • Create in NC a complex new technology and sector, largely from scratch

1 • MISSION AND PROGRAMS

Complex because merging:

- science
 - technology
 - crop and forest agriculture
 - growers and landowners
 - large acreage
 - large and small production facilities
 - logistics and distribution
 - enormous capital investment
 - regulations
-

1 • MISSION AND PROGRAMS

To execute its mission for large capacity, the Center must work with public and private partners:

2 • Attract and assist
technology, agriculture,
and production companies

1 • MISSION AND PROGRAMS

To execute its mission for large capacity, the Center must work with public and private partners:

3 • Ensure a supply chain of feedstocks unprecedented in quantity year-round

1 • MISSION AND PROGRAMS

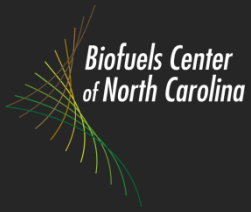
To execute its mission for large capacity, the Center must work with public and private partners:

4 • Target biofuels to economically disadvantaged rural areas

1 • MISSION AND PROGRAMS

To execute its mission for large capacity, the Center must work with public and private partners:

5 • Establish NC as a credible lead magnet in an increasingly competitive national sector



1 • MISSION AND PROGRAMS

These are large tasks.

A logical, disciplined process is required for work and expenditure of state monies:

1 • MISSION AND PROGRAMS



1 • MISSION AND PROGRAMS



- Foundation
 - Strengthen institutions
 - Support new industry
-

1 • MISSION AND PROGRAMS



- Foundation
 - Strengthen institutions
 - Support new industry
 - Not corn
 - Identify and trial grow
 - Enormous biomass year round
-

1 • MISSION AND PROGRAMS

Science &
Technology



Varied
Feedstocks



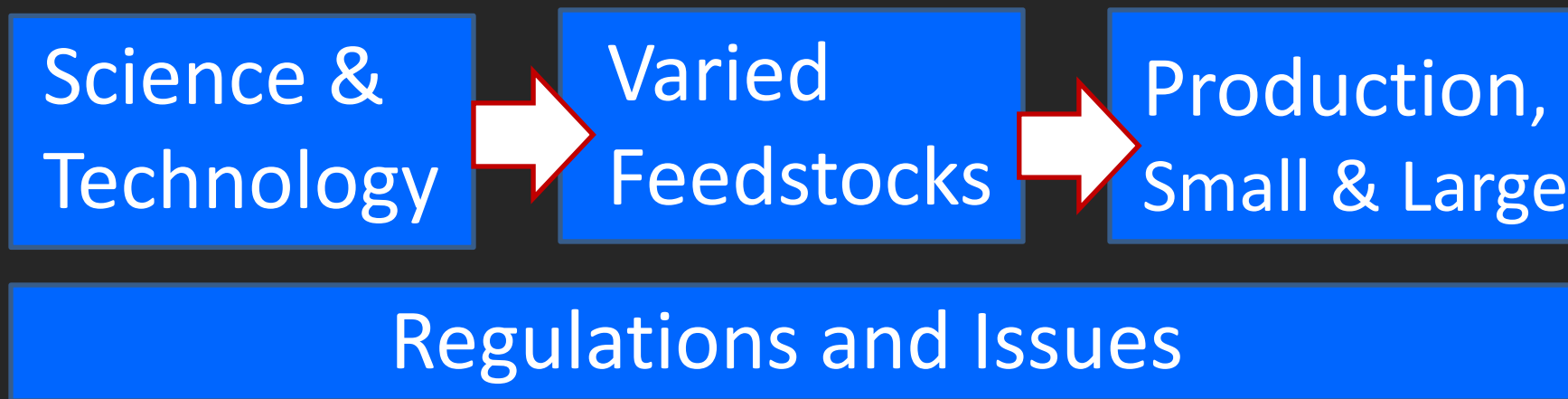
Production,
Small & Large

- Foundation
- Strengthen institutions
- Support new industry

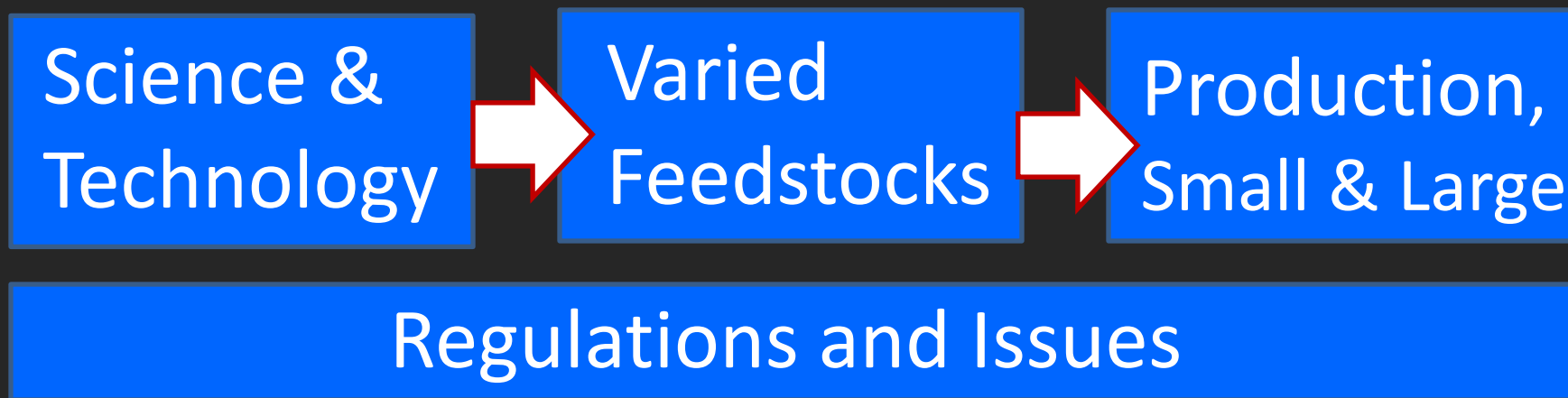
- Not corn
- Identify and trial grow
- Enormous biomass year round

- Increase biodiesel production
- Plants for 100s of millions of gallons

1 • MISSION AND PROGRAMS

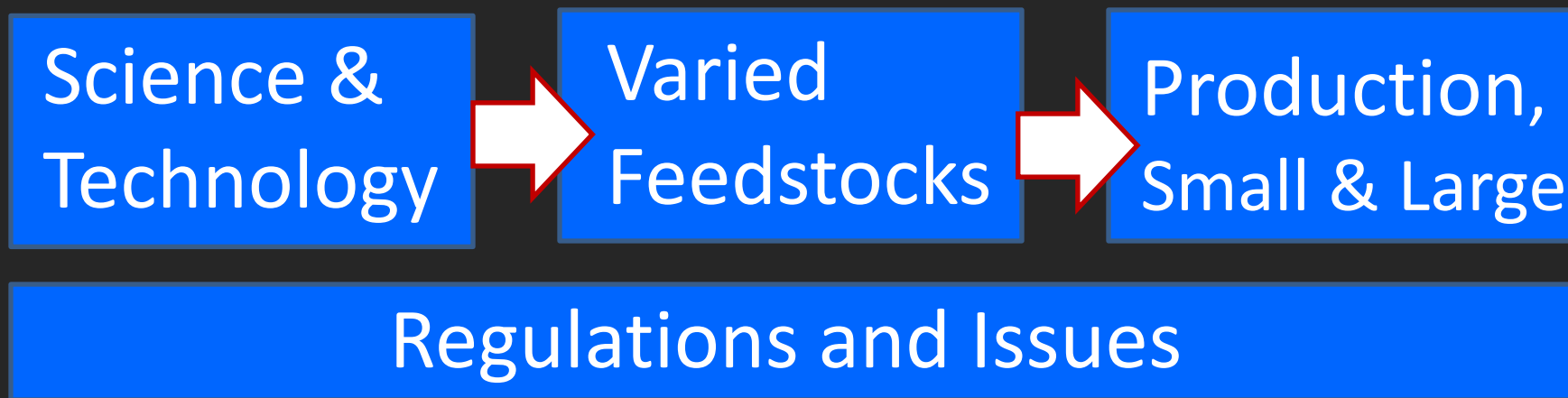


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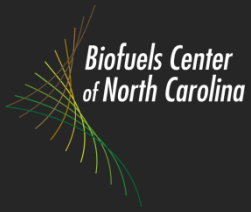


A multi-million gallon biofuels production facility will only locate where feedstocks can be assured.

1 • MISSION AND PROGRAMS



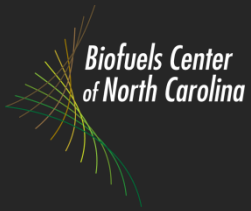
All Center funding and programs work to address these areas.



1 • MISSION AND PROGRAMS

The Center does so through:

- Staff service, technical assistance, and problem solving
 - Peer-reviewed grants and board-approved projects
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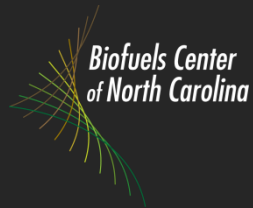


1 • MISSION AND PROGRAMS

Peer-reviewed grants and board-approved projects, 2008-12:

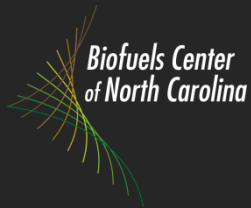
109 totaling \$10,807,681

have affected all 100 counties with outcomes in five sector areas.



1 • MISSION AND PROGRAMS

- 1 • Feedstock Growing and Analysis
42 projects: \$4,470,901



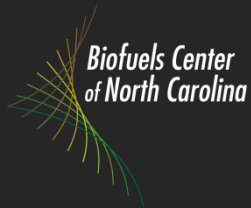
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2 • Conversion Technology

21 projects: \$3,479,765



1 • MISSION AND PROGRAMS

1 • Feedstock Growing and Analysis

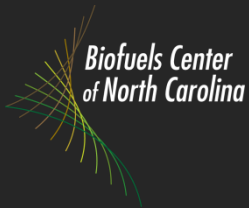
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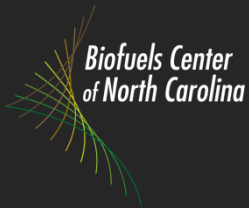
3 • Agency and Municipal

8 projects: \$532,624



1 • MISSION AND PROGRAMS

- 1 • Feedstock Growing and Analysis
42 projects: \$4,470,901
 - 2 • Conversion Technology
21 projects: \$3,479,765
 - 3 • Agency and Municipal
8 projects: \$532,624
 - 4 • Economic Development and Analyses
30 projects: \$1,878,391
-



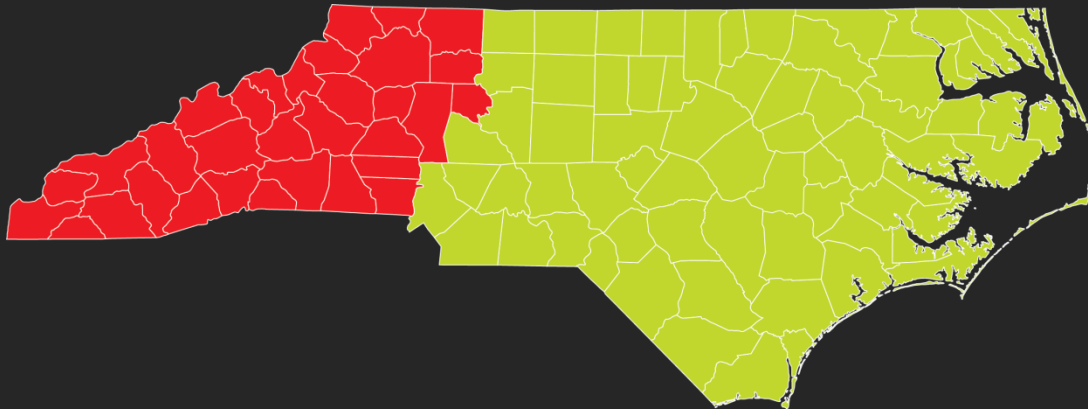
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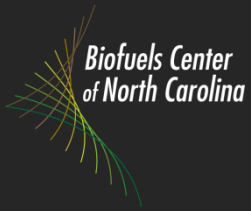
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8 projects: \$532,624
 - 4 • Economic Development and Analyses
30 projects: \$1,878,391
 - 5 • Education
8 projects: \$446,001
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1 • MISSION AND PROGRAMS

Current Year TVA Monies

For FY 2012-13, the Center received half of its appropriation from TVA settlement funding: \$2.24 M. Monies are directed to 32 western counties.



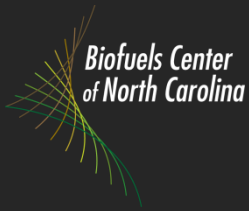


1 • MISSION AND PROGRAMS

Current Year TVA Monies

Five projects totaling \$1.14M were funded in January. One, led by AdvantageWest, assembles 14 western entities in a regional project.

6-8 more projects will be funded by May.



1 • MISSION AND PROGRAMS

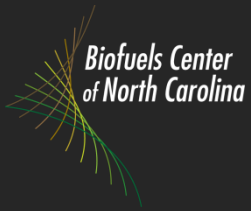
Current Year TVA Monies

While this allotment will accelerate biofuels in western counties, the Center's ability to strengthen the rest of the state is diminished.

2 • KEY PERFORMANCE INDICATORS

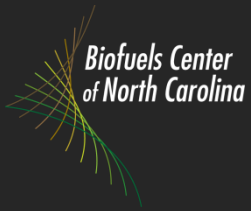
Measuring new sector and technology development in the short-term is difficult.

Development of a new sector is not easy or quick. It is not like economic development or standard company recruitment.



2 • KEY PERFORMANCE INDICATORS

A 20 or 50 million gallon production facility cannot just be recruited. It requires: thousands of acres, hundreds of thousands of tons of biomass, large capital investment, research assistance, supportive regulations, multiple involved state agencies, and proof of sustained feedstock supply over years.



2 • KEY PERFORMANCE INDICATORS

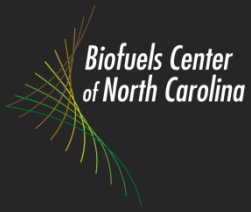
First Validating Evidence

The decision of **Chemtex / Beta Renewables** to locate a lead national cellulosic production facility in Sampson County.

2 • KEY PERFORMANCE INDICATORS

The planned Chemtex facility:

- 20 million gallons of ethanol annually
 - \$175M+ capital investment
 - 65 direct employees
 - \$48K average annual salary
 - 250 supporting employees
 - \$15M+ revenue to area growers
-



2 • KEY PERFORMANCE INDICATORS

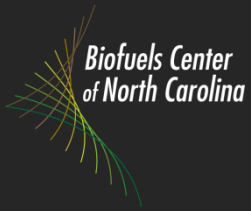
The planned Chemtex facility:

- Cellulosic feedstocks: energy grasses, sorghum, and some wood.
 - Up to 30,000 acres of land required
 - Up to 300,000 dry tons of biomass
 - A \$99M USDA loan guarantee validates company technology
-

2 • KEY PERFORMANCE INDICATORS



The sister facility in northern Italy was completed in October.



2 • KEY PERFORMANCE INDICATORS

To gain the facility, the Center over two years has coordinated and assisted with:

- Financial underwriting through BB&T
 - Identification of land
 - Identification of growers and landowners
 - Multi-feedstock supply chain development
 - Work of 7 involved state agencies
 - Regulatory and environmental issues
-

2 • KEY PERFORMANCE INDICATORS

Chemtex leadership has affirmed:

- *Other facilities in Eastern counties are expected to follow.*
 - *The value of state biofuels commitment and of the Biofuels Center to the location decision.*
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2 • KEY PERFORMANCE INDICATORS

Chemtex

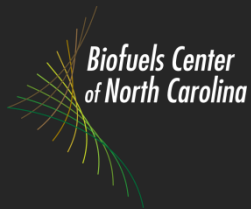


2 • KEY PERFORMANCE INDICATORS

Chemtex



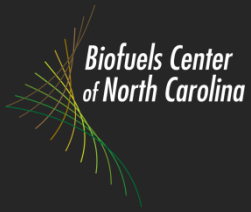
Other Production



2 • KEY PERFORMANCE INDICATORS

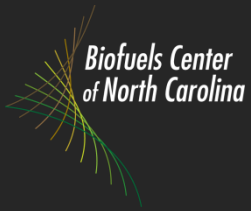
Extrapolating to just four more facilities:

| | |
|---------------------------------------|---------|
| \$175M capitol investment x 5 | \$875 M |
| 65 direct jobs x 5 | 325 |
| 250 supporting jobs x 5 | 1250 |
| \$15M+ grower revenue x 5 | \$75 M+ |
| Potential acreage required | 150,000 |
| Potential dry tons of feedstock | 1.5 M |



3 • SIMILAR ORGANIZATIONS

No other agency or non-profit works long-term with single focus to develop all aspects of biofuels in NC.



4 • BUDGETARY IMPACTS

Impact of Reductions

From 2007-2012, the Center has been appropriated an average of \$4.1M annually in state funds.

Reduction this year to \$2.063M in state funds diminishes capacity to target all aspects of biofuels development across the state.

4 • BUDGETARY IMPACTS

Impact of Reductions

Perhaps the largest impact is seen from companies considering North Carolina. Three significant companies have asked if the state is backing off its long-term commitment to biofuels and as a result will less assist them.

4 • BUDGETARY IMPACTS

Generating Revenue from Other Sources

External funding can and has been gained for specific projects.

Large reliance on external funding for core projects and for long-term state economic development policy is risky.

4 • BUDGETARY IMPACTS

Generating Revenue from Other Sources

Since the Center itself does not undertake research, it is ineligible for most federal monies. Funding sources often impose matching fund requirements. Goals of the Center and of funding programs are often mismatched.

4 • BUDGETARY IMPACTS

Movement to Self-Supporting

The Center was established by the Legislature and assigned a large task valuable to farmers, employment, state goals, and the biofuels sector. Work is ongoing and long-term.

Maintenance of state goals and economic development with soft money is risky and in fact not assured.
